



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
BETHESDA, MARYLAND 20205

September 14, 1979

Mr. Robert W. Hamilton
Letter Gap, West Virginia 25255

Dear Mr. Hamilton:

This is in response to your June 12 letter requesting information about eye injury that may result from looking at the sun. The National Eye Institute has primary responsibility within the National Institutes of Health for conducting and supporting research on vision disorders.

First let me confirm the information you have that looking directly at the sun is harmful and offers no therapeutic benefits. It is our impression that most eye specialists would also agree that staring at the sun with eyes closed may be detrimental, although I cannot cite a specific reference which warns against it.

For specific answers to your questions about the possible hazards of direct, closed-eye solar fixation, the light frequencies that may cause damage, and the light permeability of the eyelid, I suggest you consult MEDLINE. MEDLINE, a nationwide, computer-based information retrieval system maintained by NIH's National Library of Medicine, would be the best source for references to recently published medical literature on these subjects. For more information about MEDLINE and the location of the nearest access terminal, contact your regional medical library at the address in the enclosed MEDLARS brochure.

You may also want to contact the Visual Science Information Center, 2155 Webster Street, San Francisco, California 94115. This library may have a broader scope of materials and earlier references than MEDLINE.

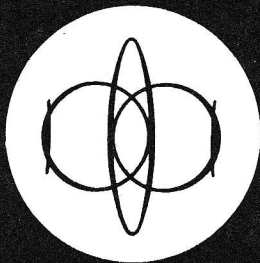
Although we do not have any printed materials on the hazards of sun gazing available to send you, I am enclosing a bibliography of articles on this subject taken from our files. In addition, you may find it helpful to consult the ophthalmology references checked on the enclosed list which contain information on these hazards. You may also wish to write to the National Society to Prevent Blindness, Inc., 79 Madison Avenue, New York, New York 10016, for more information on this subject.

I hope this information will be helpful to you.

Sincerely yours,

Joel S. Sugarman
Office of Program Planning
and Scientific Reporting
National Eye Institute

Enclosures



NATIONAL COMMITTEE FOR RESEARCH IN OPHTHALMOLOGY AND BLINDNESS

Secretarial Office

UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE
HEALTH SCIENCES CENTER, LOUISVILLE, KENTUCKY 40201

August 8, 1979

Robert W. Hamilton
R.R. 2
P.O. Box 15-A1
Cedarville, West Virginia 26611

Dear Mr. Hamilton:

I apologize for delay in answering your inquiry concerning hazards of direct solar viewing. Doctor Bates of Philadelphia died many years ago without any scientific evidence to support his theoretical approaches. Solar viewing, whether due to ill protected studies of solar eclipses by astronomers or occasional drug related fixations by unwary individuals, produces thermal (infra-red) damage to the percipient cells of the retina where the infra-red rays are brought to a sharp or "burning glass" focus by the cornea and lens system of the eye. Ultraviolet is less of a danger though, as in welders or arctic explorers exposed to "snow blindness", there may be transient, painful destruction of the covering cellular layers on the outer surface of the cornea.

The eyelids are translucent rather than completely opaque. Therefore, light of various wave lengths is transmitted through closed lids. There has been some research done on the quality of light transmission in laboratory primates where the lids have been surgically closed one to the other. This does not preclude totally the possibility of light damage. You are correct in that such transmission varies greatly with the thickness of the lid, pigmentation of the lid (race), and even the ancillary deposit of fat or other lipids in the skin or under the skin of the lid.

Most fundamentally, I think you should establish what true virtue may be achieved with your product. You provide no information suggesting a scientific approach for any usefulness. The generation of phosphenes can be achieved by pressing the finger against the eye, but this also poses some mechanical hazard in distortion of the globe itself. I would urge that you consult thoroughly your own and responsible eye physician (ophthalmologist) before launching any such program. Obviously the projections which you outline contain potentials for inappropriate use.

Very truly yours,

Arthur H. Keeney, M.D., D.Sc.
Professor of Ophthalmology

AHK:jh